Instructions, Repair and Parts

Dyna-Star® HP Pump System

332540E
EN

Provides lubricant flow and pressure to operate a single line parallel automatic lubrication system. For automatic lubrication systems only.
Not approved for use in European explosive atmosphere locations.

Important Safety Instructions
Read all warnings and instructions in this manual and the Dyna-Star HP and HF Pump instruction manual. Save all instructions.

Maximum Working Pressure: 3500 psi (24.1 MPa, 241 bar)

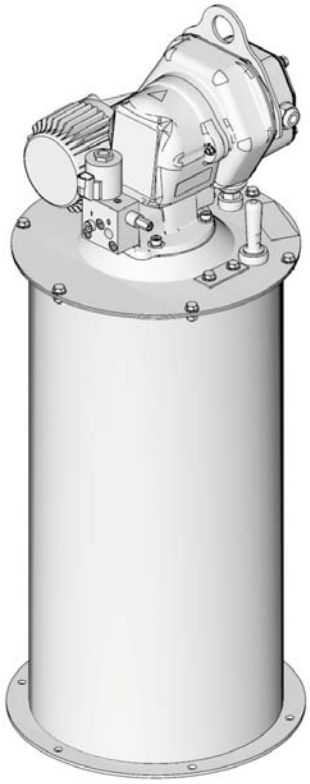
Models:

All models include Tube-in-Tube design, vent valve, cover and tank.

System Models	Size		Dip Stick	Low Level	Follower Plate*	Auto-Fill Shut Off
	35/60 Pound	90/120 Pound				
77X100	X		X			
77X101		X	X			
77X102	X					X
77X103		X				X
77X104	X			X	X	
77X105		X		X	X	

**Can only be used with Low Level models.*

Models 77X100 and 77X101 shown



CE

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Warnings

The following warnings are for the setup, use, grounding, maintenance, and repair of this equipment. The exclamation point symbol alerts you to a general warning and the hazard symbols refer to procedure-specific risks. When these symbols appear in the body of this manual or on warning labels, refer back to these Warnings. Product-specific hazard symbols and warnings not covered in this section may appear throughout the body of this manual where applicable.

⚠WARNING

FIRE AND EXPLOSION HAZARD

When flammable fluids are present in the work area, such as gasoline and windshield wiper fluid, be aware that flammable fumes can ignite or explode. To help prevent fire and explosion:

- Use equipment only in well ventilated area.
- Eliminate all ignition sources, such as cigarettes and portable electric lamps.
- Keep work area free of debris, including rags and spilled or open containers of solvent and gasoline.
- Do not plug or unplug power cords or turn lights on or off when flammable fumes are present.
- Ground all equipment in the work area.
- Use only grounded hoses.
- **Stop operation immediately** if static sparking occurs or you feel a shock**.** Do not use equipment until you identify and correct the problem.
- Keep a working fire extinguisher in the work area.

SKIN INJECTION HAZARD

High-pressure fluid from dispensing device, hose leaks, or ruptured components will pierce skin. This may look like just a cut, but it is a serious injury that can result in amputation. **Get immediate surgical treatment.**

- Do not point dispensing device at anyone or at any part of the body.
- Do not put your hand over the fluid outlet.
- Do not stop or deflect leaks with your hand, body, glove, or rag.
- Follow the **Pressure Relief Procedure** when you stop dispensing and before cleaning, checking, or servicing equipment.
- Tighten all fluid connections before operating the equipment.
- Check hoses and couplings daily. Replace worn or damaged parts immediately.

⚠WARNING

PRESSURIZED EQUIPMENT HAZARD

Over-pressurization can result in equipment rupture and serious injury.

- A pressure relief valve is required at each pump outlet.
- Follow **Pressure Relief Procedure** in this manual before servicing.

EQUIPMENT MISUSE HAZARD

Misuse can cause death or serious injury.

- Do not operate the unit when fatigued or under the influence of drugs or alcohol.
- Do not exceed the maximum working pressure or temperature rating of the lowest rated system component. See **Technical Data** in all equipment manuals.
- Use fluids and solvents that are compatible with equipment wetted parts. See Technical Data in all equipment manuals. Read fluid and solvent manufacturer's warnings. For complete information about your material, request MSDS from distributor or retailer.
- Turn off all equipment and follow the **Pressure Relief Procedure** when equipment is not in use.
- Check equipment daily. Repair or replace worn or damaged parts immediately with genuine manufacturer's replacement parts only.
- Do not alter or modify equipment. Alterations or modifications may void agency approvals and create safety hazards.
- Make sure all equipment is rated and approved for the environment in which you are using it.
- Use equipment only for its intended purpose. Call your distributor for information.
- Route hoses and cables away from traffic areas, sharp edges, moving parts, and hot surfaces.
- Do not kink or over bend hoses or use hoses to pull equipment.
- Keep children and animals away from work area.
- Comply with all applicable safety regulations.

MOVING PARTS HAZARD

Moving parts can pinch, cut or amputate fingers and other body parts.

- Keep clear of moving parts.
- Do not operate equipment with protective guards or covers removed.
- Pressurized equipment can start without warning. Before checking, moving, or servicing equipment, follow the **Pressure Relief Procedure** and disconnect all power sources.

⚠WARNING

BURN HAZARD

Equipment surfaces and fluid that’s heated can become very hot during operation. To avoid severe burns:

- Do not touch hot fluid or equipment.

PERSONAL PROTECTIVE EQUIPMENT

Wear appropriate protective equipment when in the work area to help prevent serious injury, including eye injury, hearing loss, inhalation of toxic fumes, and burns. This protective equipment includes but is not limited to:

- Protective eyewear, and hearing protection.
- Respirators, protective clothing, and gloves as recommended by the fluid and solvent manufacturers.

Typical Installation: Injector System

The installation shown in below is only a guide for selecting and installing system components. Contact your Graco distributor for assistance in planning a system to suit your needs.

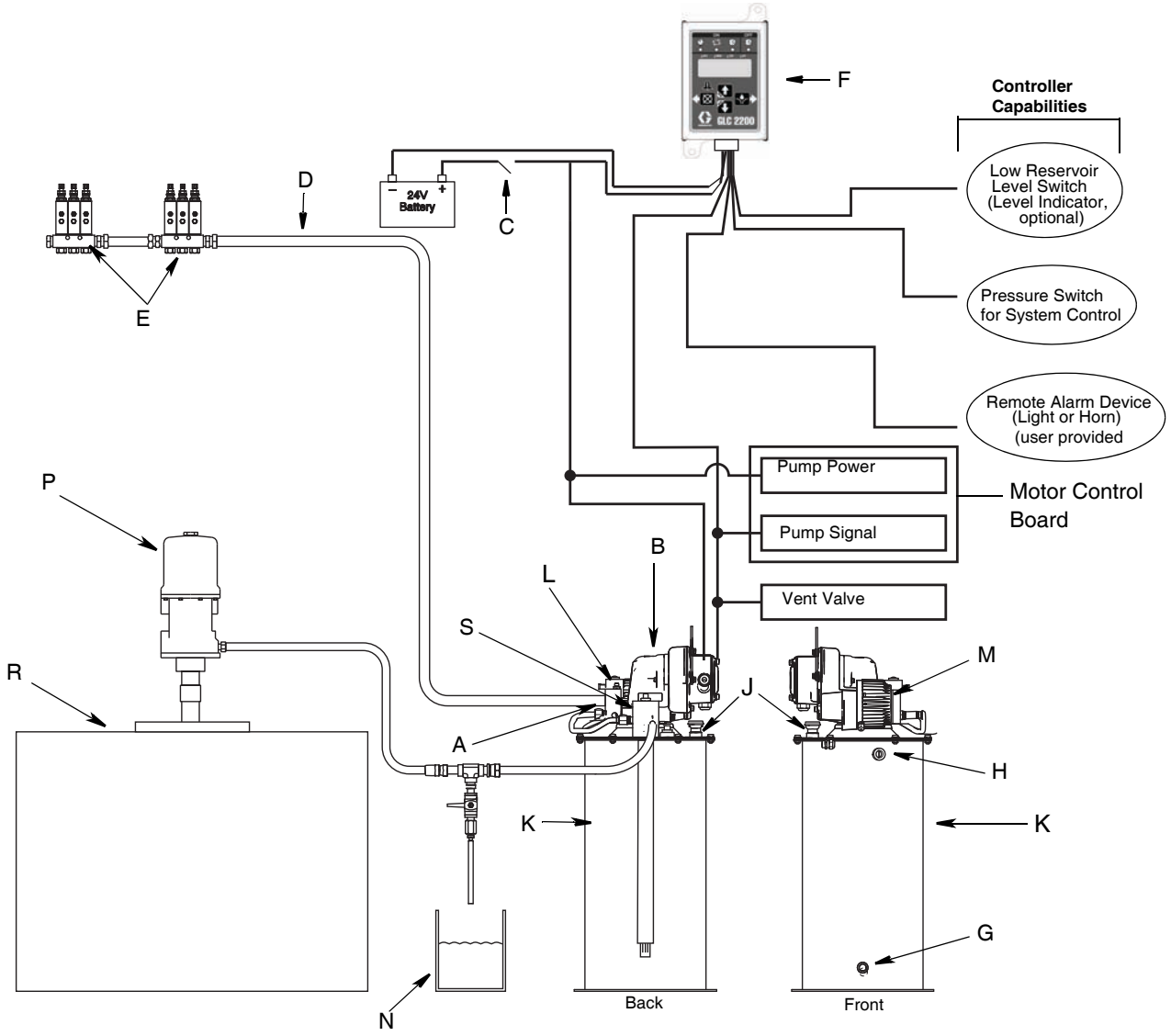


FIG. 1

Key:

A Lubricant outlet connection
B Pump
C Ignition switch*
D High-pressure lubricant supply lines*
E Injector banks*
F Lubrication controller*
G Fill port (not used with Auto-Fill Shut Off)
H Overflow port (not used with Auto-Fill Shut Off)
J Breather
K Reservoir
L Vent Valve
M Motor
N Fluid overflow container
P Pump - remote filling station
R Reservoir - remote filling station
S Auto-Fill Shut Off

**User provided*

Typical Installation: Series Progressive System

The installation shown below is only a guide for selecting and installing system components. Contact your Graco distributor for assistance in planning a system to suit your needs.

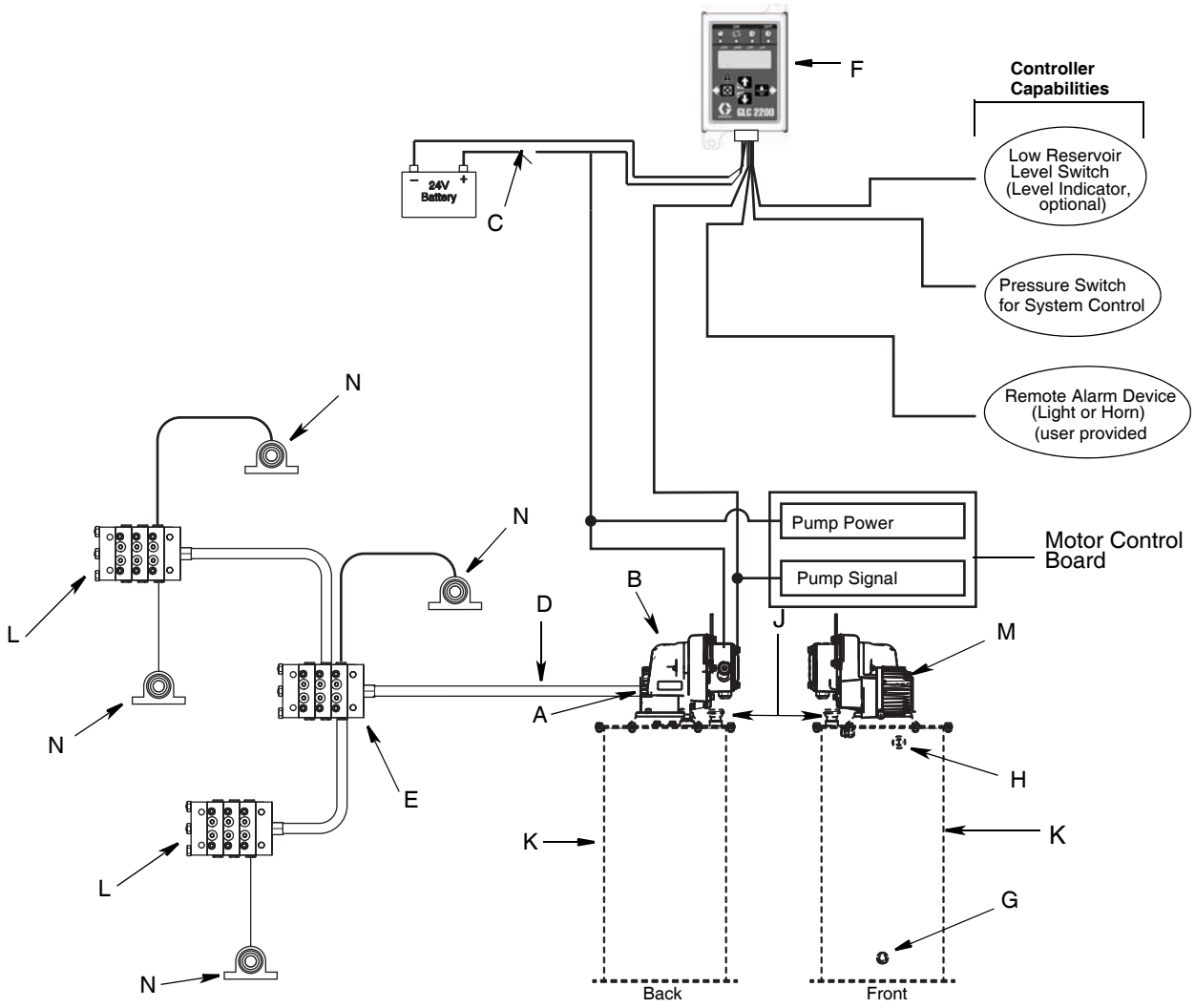


FIG. 2

Key:

A Lubricant output connection†
B Pump†
C Ignition switch*
D High-pressure lubricant supply lines*
E Primary metering device*
F Lubrication controller*
G Fill port (for reference only; non-tube-in-tube models only)
H Overflow port (for reference only)
J Breather (for reference only)
K Reservoir / Tank (for reference only)
L Secondary metering device
M Motor
N Bearing

**User provided*

† The pump outlet requires modification to convert an Injector-based system to Series Progressive system. Dyna-Star HF and HP Outlet Adapter Kits 77X543 rated 4000 psi (275.8 bar, 27.58 MPa) and 77X544 rated 5000 psi (344.7 bar, 34.47 MPa) are available from Graco. Contact Graco Customer Service or your local Graco distributor to identify the correct kit for your installation location.

Installation

Pressure Relief

Follow the Pressure Relief Procedure whenever you see this symbol.

This equipment stays pressurized until pressure is manually relieved. To help prevent serious injury from pressurized fluid, such as skin injection, splashing fluid and moving parts, follow the Pressure Relief Procedure when you stop dispensing and before cleaning, checking, or servicing the equipment.

To relieve pressure in the system, use two wrenches working in opposite directions on pump outlet fitting to ***slowly loosen fitting only*** until fitting is loose and no more lubricant or air is leaking from fitting as shown in FIG. 3.

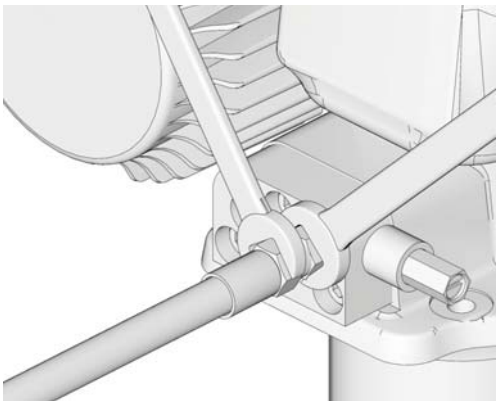
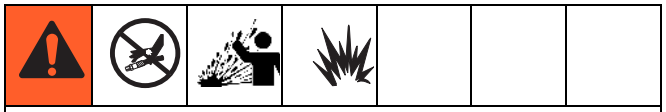


FIG. 3



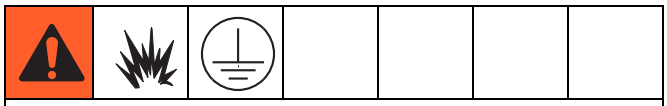
COMPONENT RUPTURE HAZARD

The maximum working pressure of each component in the system may not be the same. To reduce the risk of overpressurizing any component in the system, be sure you know the maximum working pressure of each component. **Never** exceed the maximum working pressure of the lowest rated component in the system. Overpressurizing any component can result in rupture, fire, explosion, property damage and serious injury.

- *Read and follow instructions supplied with each system component.*
- *Reference letters used in the following Installation instructions, refer to Typical Installation Key, page 5.*

Wiring

Grounding



The equipment must be bonded (grounded) directly to the truck. Grounding reduces the risk of static shock due to static build up on the equipment.

System Configuration and Wiring

NOTE: Cable wiring harness kits are available from Graco. See Parts page 11 for a complete list of available kits.

Fuses

NOTICE

Fuses (user supplied) are required on all models. To avoid equipment damage:

- Never operate the Dyna-Star Pump models without a fuse installed.
- A fuse of the correct voltage and amperage must be installed in line with the power entry to the system. Graco recommends using 35A fuses.

Reservoir Installation

HEAVY EQUIPMENT HAZARD

Equipment is heavy. To avoid injury:

- Be sure unit is securely mounted ***before*** operation.
- Do not lift pressurized equipment.
- Lifting or moving heavy equipment incorrectly can cause serious injury. To avoid serious injuries, such as muscle strain or back injuries, when moving pump always use a lifting aid secured to the pump lift ring. See Technical Data, in the pump instruction manual for pump weight.

1. Mount Reservoir on sturdy, flat surface. Note location of Fill Port (G) and Lubricant Outlet Connection (A) for easy access once installed.
2. Connect High Pressure Lubricant Supply Line (D) to the Lubricant Outlet Connection (A).
3. Ground system (see ***Grounding***). Mount reservoir to grounded chassis member.

Pump Installation

Pump installation instructions are provided in the Dyna-Star HP or HF Pump instruction manual 332514 provided with your system.

Vent Valve Kit

The vent valve is used to reduce system pressure and allow the injector to reset. When energized, grease is pumped out through the outlet port (marked 0) on the vent valve. When de-energized, it vents pressure internally to tank.

Refer to the Dyna-Star HP or HF Vent Valve Kit manual 332515 for installation and operation instructions.

Auto-Fill Shut Off

The Auto-Fill Shut Off is used refilling the grease tank/reservoir instead of the fill port (G). When the grease level in the tank is full, the Auto-Fill Shut Off automatically ends the filling operation. Refer to the Auto-Fill Shut Off Kit instruction manual 332518 for complete instructions and additional information.

Operation

- *Read and follow instructions supplied with each system component.*
- *Reference letters used in the following Installation instructions, refer to Typical Installation Key, page 5.*

Start-up

Do not insert finger into the overflow port while filling a reservoir equipped with a follow plate. Injury or amputation could result.

Priming

1. After reservoir/tank is completely filled, remove high pressure lubricant supply line (D) from the outlet.
2. Connect power to pump.
3. Start pump and run pump until all air has been expelled and fluid flow is continuous.
4. Reconnect the high pressure lubricant supply line (D) to outlet.

Filling Reservoir

There are two reservoir filling options; Fill Port (G) or Auto-Fill Shut Off (S). Only one method of filling can be used.

Filling Reservoir With Fill Port (G)

NOTICE

To prevent damage to the unit:

- Check Breather vent (J) for proper operation before filling reservoir.
- Open Overflow Port (H) before filling for visual inspection of lubricant level.
- Do not fill beyond Overflow Port (H).
- Do not use Overflow Port (H) to fill reservoir.

1. Connect lubricant supply hose from remote filling station pump to Fill Port (G).
2. Remove plug from Overflow Port (H).
3. Slowly turn on supply lubricant until level of lubricant reaches Overflow Port (H).

NOTE: For systems with a follower plate, fill unit until the follower plate reaches the Overflow Port (H).

4. Disconnect lubricants supply hose from Fill Port (G).
5. Plug Fill Port (G) and Overflow Port (H).

NOTICE

Never allow pump to run dry of the fluid being pumped. Running a pump dry can damage the pump.

Filling Reservoir With Auto-Fill Shut Off (S)

Refer to Auto-Fill Shut Off Kit instruction manual 332518.

Shutdown

For normal system shut down, disconnect power by turning off the ignition switch (C).

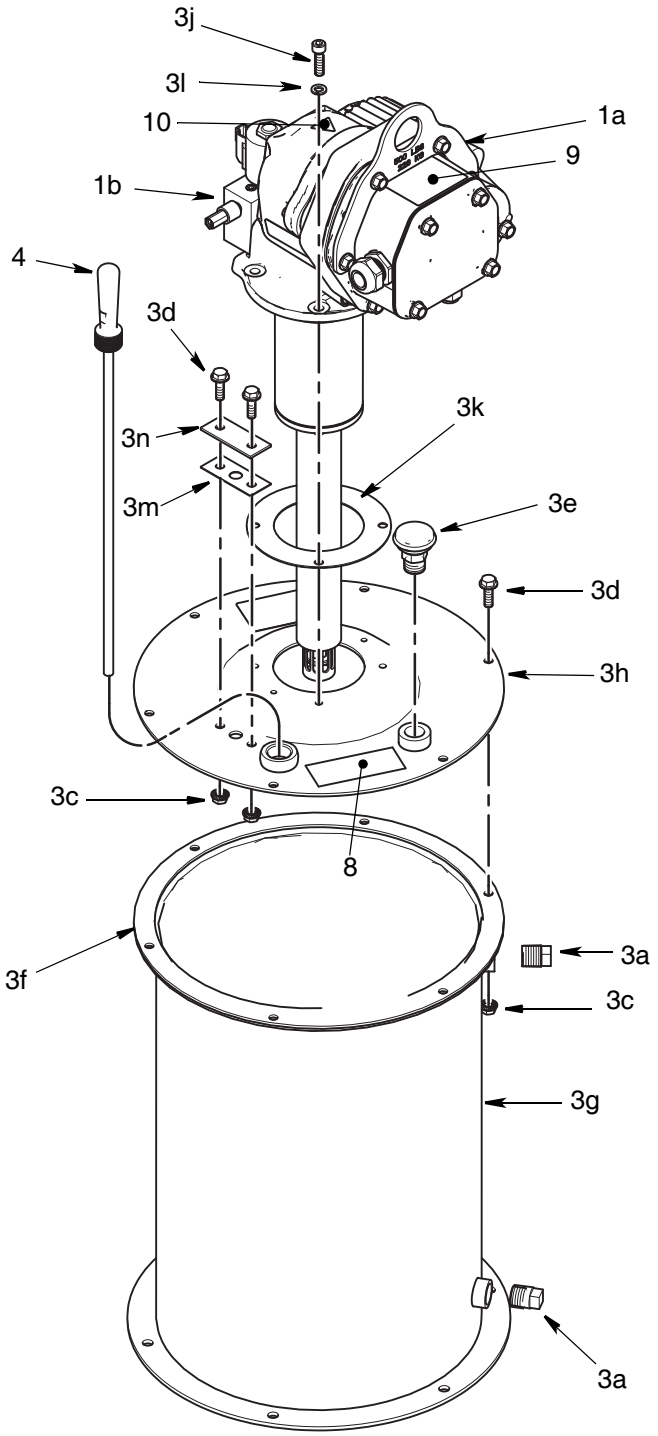
Parts List

Model 77X100: Dyna-Star Pump, 60#, Dip Stick, Reservoir, Cover, Vent Valve

Model 77X101: Dyna-Star Pump, 90#, Dip Stick, Reservoir, Cover, Vent Valve

Ref. No.	Part No.	Description	Qty
1	77X011	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 60#, models 77X100, see instruction manual 332514	1
	77X012	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 90#, models 77X101, see instruction manual 332514	1
1a		PUMP	1
1b		VENT VALVE, see instruction manual 332519	1
3	77X535	KIT, reservoir, 60# grease, includes 3a-3n, models 77X100	1
	77X536	KIT, reservoir, 90# grease, includes 3a-3n models 77X101	1
3a		. PLUG, pipe	2
3c		. NUT, flanged, hex	8
3d		. SCREW, cap, flange head	8
3e		. BREATHER	1
3f	194868	. GASKET, cover	1
3g		. PAIL, reservoir, 60#, included in kit 77X535	
		. PAIL, reservoir, 90#, included in kit 77X536	1
3h	16V394	. COVER, reservoir	1
3j	109114	. SCREW, cap	4
3k	15M442	. GASKET, pump	1
3l	104572	. WASHER, lock, spring	4
3m	16V396	. SEAL	1
3n	16V395	. COVER	1
4	77X531	KIT, dip stick, 60#, grease, see instruction manual 332515	1
	77X530	KIT, dip stick, 90#, grease, see instruction manual 332515	1
8▲	195341	LABEL, notice, breather	1
9▲	16U728	LABEL, over pressurize warning	1
10▲	15H108	LABEL, pinch warning	1

▲ *Replacement Danger and Warning labels, tags and cards are available at no cost.*



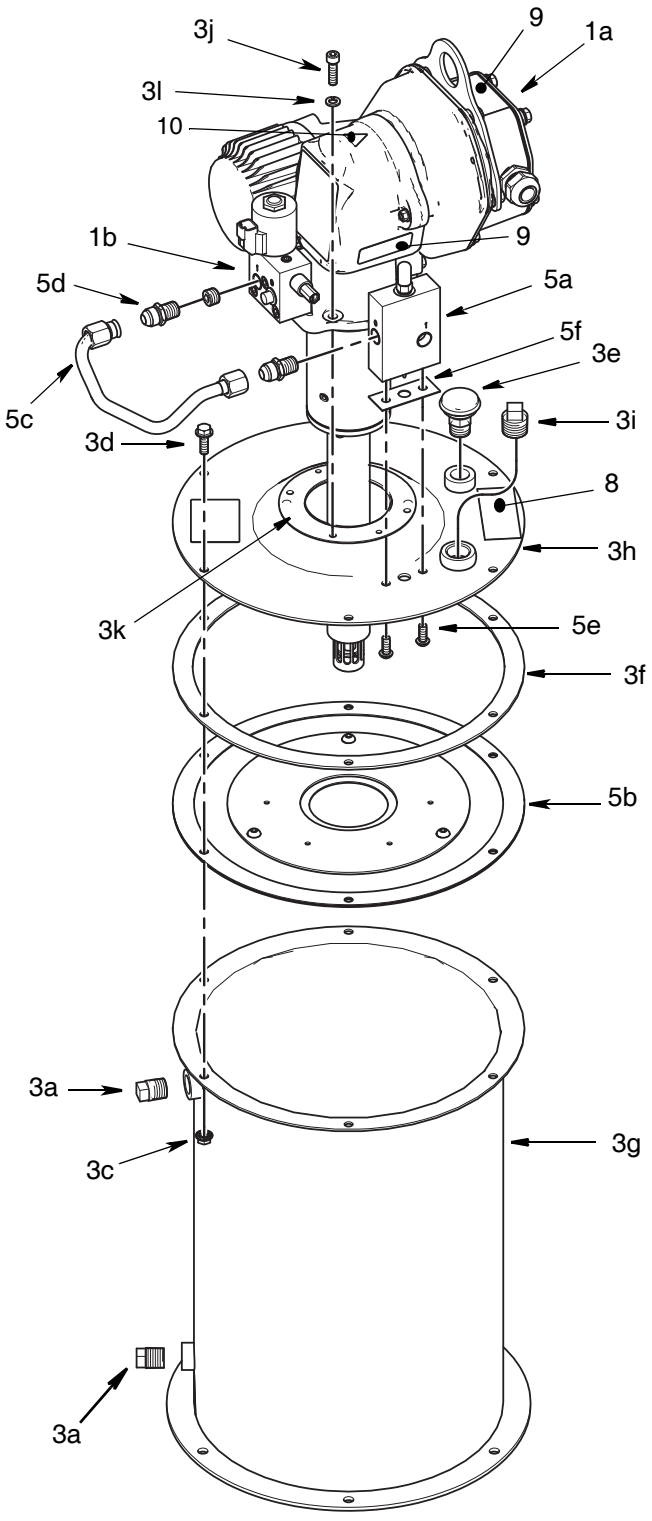
Parts List

Model 77X102: Dyna-Star Pump, 60#, Auto-Fill Shut Off, Reservoir, Cover, Vent Valve

Model 77X103: Dyna-Star Pump, 90#, Auto-Fill Shut Off, Reservoir, Cover, Vent Valve

Ref. No.	Part No.	Description	Qty
1	77X011	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 60#, models 77X100, see instruction manual 332514	1
	77X012	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 90#, models 77X101, see instruction manual 332514	1
1a		PUMP	1
1b		VENT VALVE, see instruction manual 332519	1
3	77X535	KIT, reservoir, 60# grease, includes 3a-3l, models 77X100	1
	77X536	KIT, reservoir, 90# grease, includes 3a-3l, models 77X101	1
3a		. PLUG, pipe	2
3c		. NUT, flanged, hex	6
3d		. SCREW, cap, flange head	6
3e		. BREATHER	1
3f	194868	. GASKET, cover	1
3g		. PAIL, reservoir, 60#, included in kit 77X535	1
		. PAIL, reservoir, 90#, included in kit 77X536	1
3h	16V394	. COVER, reservoir	1
3i	104663	. PLUG, pipe	1
3j	109114	. SCREW, cap	4
3k	15M442	. GASKET, pump	1
3l	104572	. WASHER, lock, spring	4
5	77X521	VALVE, auto-fill shut off, see instruction manual 332518	1
5a		VALVE, auto shut off	1
5b		DIAPHRAGM, assembly	1
5c		TUBE, vent valve	1
5d		FITTING, connector, 3/8 in. npt* x JIC	2
5e		BOLT, M8 x 1.25 x 2 mm	2
5f		SEAL, auto shutoff valve	1
8▲	195341	LABEL, notice, breather	1
9▲	16U728	LABEL, over pressurize warning	1
10▲	16U727	LABEL, pinch warning	1

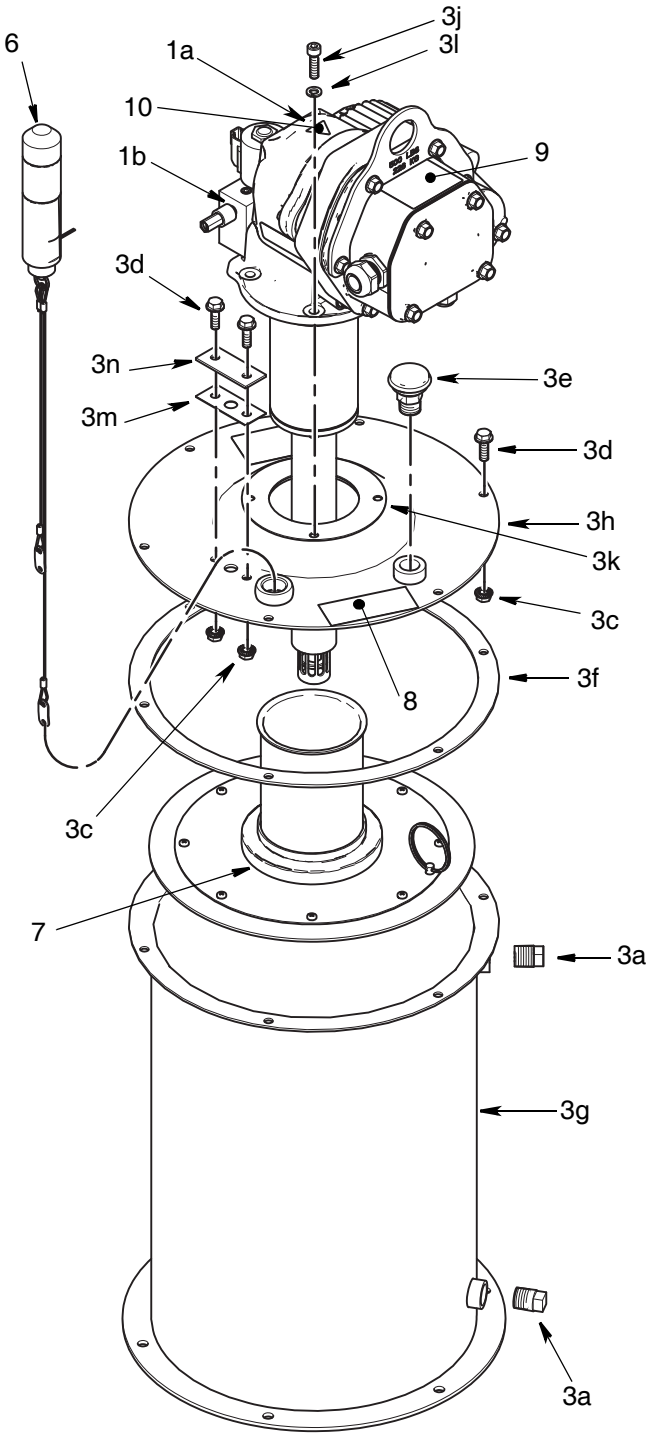
▲ *Replacement Danger and Warning labels, tags and cards are available at no cost.*



Parts List

Ref. No.	Part No.	Description	Qty
1	77X011	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 60#, models 77X100, see instruction manual 332514	1
	77X012	KIT, pump and vent valve, includes 1a and 1b, Dyna-Star 90#, models 77X101, see instruction manual 332514	1
1a		PUMP	1
1b		VENT VALVE, see instruction manual 332519	1
3	77X535	KIT, reservoir, 60# grease, includes 3a-3n, models 77X100	1
	77X536	KIT, reservoir, 90# grease, includes 3a-3n, models 77X101	1
3a	100737	. PLUG, pipe	2
3c		. NUT, flanged, hex	8
3d		. SCREW, cap, flange head	8
3e		. BREATHER	1
3f	194868	. GASKET, cover	1
3g		. PAIL, reservoir, 60#, included in kit 77X535	1
		. PAIL, reservoir, 90#, included in kit 77X536	1
3h	16V394	. COVER, reservoir	1
3j	109114	. SCREW, cap	4
3k	15M442	. GASKET, pump	1
3l	104572	. WASHER, lock, spring	4
3m	16V396	. SEAL	1
3n	16V395	. COVER	1
6	77X522	KIT, low level, see instruction manual 332515	1
7	77X500	KIT, plate, follower 60# / 90#	1
8▲	195341	LABEL, notice, breather	1
9▲	16U728	LABEL, over pressurize warning	1
10▲	15H108	LABEL, pinch warning	1

▲ *Replacement Danger and Warning labels, tags and cards are available at no cost.*



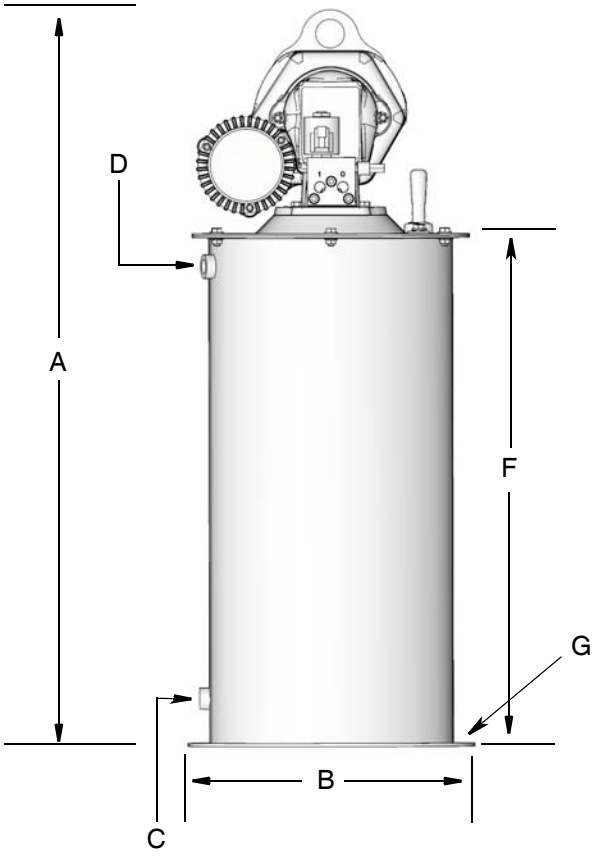
Cable Harness Kits (all models)

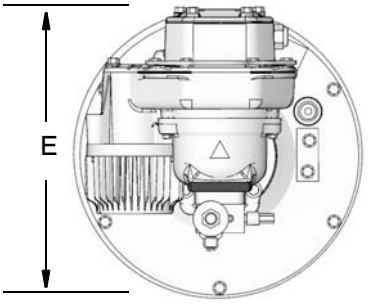
Part No.	Description
77X527	KIT, cable, power series progressive system only. Used with 77X528
77X528	KIT, cable, power extension, 15 ft (4.6 m). Used with 77X527 and 77X529
77X529	KIT, cable, power injector system only. For use with 77X528
24N402	KIT, cable, 6 ft (1.8 m), vent valve, 2 pin. For use with vent valve control.

Technical Data

Maximum working pressure	*3500 psi (24.1 MPa, 241 bar*
Pump wetted parts	See Dyna-Star HP and HF Pump manual: 332514
Vent valve wetted parts	See Dyna-Star HP and HF Vent Valve Kit manual: 332519
Reservoir wetted parts	steel, buna-n rubber
Reservoir overflow port size	1/2 inch npt
Reservoir fill port size	1/2 inch npt
Lubricant outlet port size	3/8 npt (f)
Grease capacity	
Model 77X101, 77X103, 77X105	90 lb. (41 kg)
Model 77X100, 77X102, 77X104	60 lb. (27 kg)
Sound Data: All pumps	See Dyna-Star HP and HF Pump manual: 332514

Dimensions





Ref	60 lb Models		90 lb Models	
	US (inch)	Metric (cm)	US (inch)	Metric (cm)
A	30.5	77.47	38.0	96.52
B	14.5	36.83	14.5	36.83
C	1/2 inch npt		1/2 inch npt	
D	1/2 inch-14 npt		1/2 inch-14 npt	
E	14.5	36.83	14.5	36.83
F	19.4	49.28	27.0	36.83
G	7/16 inch Ø hole - 6; 13-7/8 inch bolt circle			

Notes

Graco Standard Warranty

Graco warrants all equipment referenced in this document which is manufactured by Graco and bearing its name to be free from defects in material and workmanship on the date of sale to the original purchaser for use. With the exception of any special, extended, or limited warranty published by Graco, Graco will, for a period of twelve months from the date of sale, repair or replace any part of the equipment determined by Graco to be defective. This warranty applies only when the equipment is installed, operated and maintained in accordance with Graco's written recommendations.

This warranty does not cover, and Graco shall not be liable for general wear and tear, or any malfunction, damage or wear caused by faulty installation, misapplication, abrasion, corrosion, inadequate or improper maintenance, negligence, accident, tampering, or substitution of non-Graco component parts. Nor shall Graco be liable for malfunction, damage or wear caused by the incompatibility of Graco equipment with structures, accessories, equipment or materials not supplied by Graco, or the improper design, manufacture, installation, operation or maintenance of structures, accessories, equipment or materials not supplied by Graco.

This warranty is conditioned upon the prepaid return of the equipment claimed to be defective to an authorized Graco distributor for verification of the claimed defect. If the claimed defect is verified, Graco will repair or replace free of charge any defective parts. The equipment will be returned to the original purchaser transportation prepaid. If inspection of the equipment does not disclose any defect in material or workmanship, repairs will be made at a reasonable charge, which charges may include the costs of parts, labor, and transportation.

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Graco Information

To place an order, contact your Graco distributor or to identify the nearest distributor call,
Toll Free: 1-800-533-9655, Fax: 612-378-3590

All written and visual data contained in this document reflects the latest product information available at the time of publication.
Graco reserves the right to make changes at any time without notice.

For patent information, see www.graco.com/patents.

Original instructions. This manual contains English. MM 332540

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